

REMARKS

Claim 1 has been amended to clarify the invention and to better define the invention over the prior art. Specifically, independent claim 1, as amended, requires that the third mechanism is adapted to perform vacuum exhausting, at least, before the fourth mechanism melts the low-melting-point glass. No new matter has been added.

Turning to the art rejections, the rejection of claims 1-8 under 35 USC § 103(a) as being unpatentable over Betsui et al. (US Patent 5,938,494) in view of Peng (US Patent 5,797,780), independent claim 1, as amended, requires that the apparatus be adapted to perform vacuum exhausting before sealing the panels. And, independent claim 7 requires that vacuum exhausting of the inside of the joining chamber be performed before joining the front and rear substrates. Betsui et al. only teaches the traditional exhausting method of using an exhaust tube to vacuum exhaust during and after the joining of the front and rear substrates (col. 5, lines 50-59). Peng likewise teaches sealing together the front and back panels before vacuuming through an exhaust tube (col. 3, lines 43-61). Therefore, no combination of Betsui et al. and Peng can achieve or render obvious either independent claim 1 or 7.

Furthermore, claim 7 requires “a fourth step of making an inside of said gas introduction and sealing chamber at atmospheric pressure.” (emphasis added). The Examiner states Betsui et al. teaches this step by disclosing “[an] electric gas for removal is introduced into the panel and as shown in Figure 3, the temporary protective film forming chamber has [a] gas pressure of 5×10^{-3} [Torr] or under atmospheric pressure.” (Detailed Action, pg. 6). The Applicant agrees that Betsui et al. teaches the temporary protective film-forming chamber at a gas pressure of 5×10^{-3} Torr. However, 5×10^{-3} Torr hardly is atmospheric pressure!

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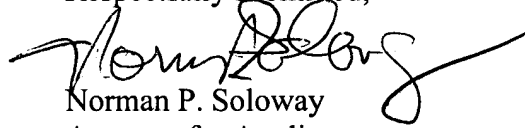
Atmospheric pressure is equal to 760 Torr (or mm of mercury), not 5×10^{-3} Torr. (See N. Irving Sax & Richard J. Lewis, Sr., Hawley's Condensed Chemical Dictionary, pg. 105 (11th ed. 1987) (copy of excerpt enclosed). Thus, Betsui et al. does not teach the step of making an inside of the gas introduction and sealing chamber at atmospheric pressure. Peng does not provide this missing teaching because Peng appears to teach nothing but a stand-alone vacuum furnace. Thus, no combination of Betsui et al. and Peng could achieve or render obvious claim 7.

Claims 2-6 and claim 8 depend directly or indirectly on claims 1 or 7, respectively, and are allowable for the same reasons as stated above, as well as for their own additional limitations.

Having dealt with all the objections raised by the Examiner, the Application is believed to be in order for allowance. Early and favorable action are respectfully requested.

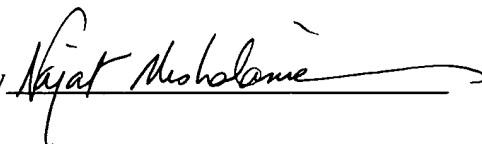
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Respectfully submitted,


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